

Probe-induced asymmetry in nonlinear quantum transport

Cosimo Gorini

CEA-Saclay (IRAMIS/SPEC), Gif-sur-Yvette, France

e-mail: `cosimo.gorini@cea.fr`

Symmetry dictates that the current through a reflection-symmetric sample is an odd function of the applied voltage. We investigate the appearance of an even contribution in quantum transport due to the breaking of this symmetry. For the case of a quantum point contact (QPC) whose reflection symmetry is broken by the tip of a Scanning Gate Microscope (SGM), observable asymmetries of the current voltage characteristic are expected. Dependencies on tip position and the conductance of the QPC are predicted based on a perturbative treatment of the SGM tip, and some features of a recent experiment (arXiv:1307.8328) are discussed.